

ON SOME BATS OF THE GENUS RHINOLOPHUS, COLLECTED BY DR. W. L. ABBOTT IN THE ISLANDS OF NIAS AND ENGANO.

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The authorities of the United States National Museum have intrusted me with the identification of a series of Horseshoe Bats lately collected by Dr. W. L. Abbott in Sumatra, Nias, and Engano. The present paper deals with the *Rhinolophi* only. The *Hipposideri* will be worked out together with the British Museum material of that genus.

RHINOLOPHUS CIRCE, new species.

Diagnosis.—Closely related to *Rh. sumatranus*,^a but smaller. Fore-arm 45.2–49 mm.

Remarks.—Horseshoe, sella, connecting process, lancet, and ears as in *Rh. sumatranus*, but forearm, metacarpals, and phalanges shorter. The subjoined table of measurements^b shows the details.

Skull of the *Rh. sumatranus* pattern, but on the whole slightly more slenderly built. Dentition as in the Sumatra representative: p_3 external to the tooth-row; p_2 and p_4 generally in contact, sometimes slightly separated; p^2 in row.

Type.—Male adult (in alcohol, originally in formalin). Nias. Collected by Dr. W. L. Abbott (no. 4094). Cat. No. 141343, U.S.N.M.

Specimens examined.—Eight (6 male adults, 2 female adults), all from the type locality. Skulls of 4 specimens.

RHINOLOPHUS CALYPSO K. Andersen.

The species was based on two examples collected in Engano by Dr. E. Modigliani, and preserved in the British Museum.^c The fine series (2 male adults, 4 female adults, Nov. 17, 1904,) obtained on the same

^a Knud Andersen, Proc. Zool. Soc. London, 1905, II, pp. 133–134 (Oct. 17, 1905).

^b For explanation of measurements see Ann. Mag. Nat. Hist. (7), XVI, p. 248, footnote (August, 1905).

^c Knud Andersen, Proc. Zool. Soc. London, 1905, II, pp. 134–135, pl. iv, figs. 19 a, b, c (Oct. 17, 1905).

island by Doctor Abbott confirm the original diagnosis and description, and enables me to point out, with more confidence, the distinguishing characters of the species. *Rh. calypso* differs from *Rh. sumatranus* chiefly in the following respects: The horseshoe is broader, 9.6–10.2 mm. (in *sumatranus* 8.2–8.3); the sella broader, at base 2.7 (in *sumatranus* 2), immediately above the expansion 2.2 (in *sumatranus* 1.8); the ears larger.

In one example p_3 is almost quite in row, an individual variation (or, if preferred, reversion to a more primitive stage) which I hitherto had not seen in this species or its closest allies (*sumatranus*, *acuminatus*), but which certainly was to be expected; in all other individuals examined this small tooth is external to the row.

RHINOLOPHUS TRIFOLIATUS NIASENSIS, new subspecies.

Diagnosis.—Similar to the typical *Rh. trifoliatus*, but with longer tail.

Remarks.—In 14 specimens of *Rh. trifoliatus*, from Lower Siam, the Malay Peninsula, Sumatra, and N. Borneo, the length of the tail varies between 29.3 and 36 mm.; in the only Nias specimen obtained by Doctor Abbott it measures 40 mm. In other respects, cranial, dental, and external, the Nias form is indistinguishable from the typical form of *Rh. trifoliatus*.

Type.—Female adult (in alcohol, originally in formalin). Nias, March 15, 1905. Collected by Dr. W. L. Abbott (no. 4088). Cat. No. 141350, U.S.N.M.

GENERAL REMARKS.

From Sumatra the following species of *Rhinolophus* are known to me: *Rh. affinis superans*, *Rh. sumatranus*, *Rh. trifoliatus typicus*.

From Nias.—*Rh. circ*, *Rh. trifoliatus niasensis*.

From Engano.—*Rh. calypso*.

Rh. sumatranus, *Rh. circ*, and *Rh. calypso*, together with *Rh. acuminatus* (Java) and *Rh. acuminatus audax* (Lombok), form a small, well defined section of the *Rh. lepidus* group. As will be observed from the above, the Nias and Engano representatives of this section are specifically different from the Sumatra representative, and also specifically different *inter se*. The only other *Rhinolophus* as yet recorded from these small islands (*Rh. t. niasensis*) is so exceedingly like the typical *trifoliatus* that, for the present at least, I do not think it advisable to separate it as a distinct "species;" the small difference in the length of the tail pointed out above may ultimately prove to be indicative of an average difference only. But the total result, that the three *Rhinolophi* as yet known from Nias and Engano are either specifically or subspecifically different from the Sumatra species, is worth noticing.

Measurements.

Part.	<i>Rh. sumatranus.</i>		<i>Rh. circe.</i>		<i>Rh. calypso.</i>		<i>Rh. trifoliatus.</i>		<i>niasensis.</i> Female adult type.
	2 specimens, 1 skull.		8 specimens, 1 skulls.		8 specimens, 5 skulls.		forma typica, 16 specimens, 12 skulls.		
	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	
	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.	mm.
Ear:									
Length	18.7	19	16.7	19	19	21.5	22	26	24
Greatest breadth	14.3	14.3	14	15	16	17.2	17	19.2	17.5
Breadth of horseshoe	8.2	8.3	8	8.5	9.6	10.2	10.5	12.6	11.7
Forearm	51	51.2	45.2	49	49	52.8	47	55	52.2
Third metacarpal	35.2	36.8	32	34.2	35	38.3	30.5	37	35.7
III ¹	15.2	16.3	13	14.8	13.8	15.8	17.8	22.3	20.8
III ²	20	21	17.5	19.3	18.2	21.5	25	31	28.8
Fourth metacarpal	37.2	38	32.5	35.8	36	39.3	35.5	42	40
IV ¹	11	11.7	8.7	10.2	9.3	10.8	10.5	13	13.1
IV ²	13	13.6	11	12	12.2	13.8	14.8	20	18
Fifth metacarpal	37.5	38.3	33	35.8	36.2	39.3	37	43.8	41.2
V ¹	12.2	12.7	10	11.2	10.8	11.8	11	13.7	13.8
V ²	13.7	14.6	11.7	12.8	11.7	14	15	19.7	18.8
Tail	25.2	26.5	21.5	24	23	26.5	29.3	36	40
Lower leg	22.5	22.5	19.7	22	20.6	23.2	23.2	27.8	27.2
Foot	10.8	11	10.2	11.5	10.3	11.5	11.8	14.5	13.2
Skull:									
Total length			20.2	21.7	20.9	23	22.6	24.9	22.7
Mastoid width			10	10.2	9.9	10.7	10.7	11.6	10.3
Width of brain case			8.8	9.1	8.8	9.7	9.5	10.3	9.7
Zygomatic width			10.6	11	10.9	11.7	11.4	12.7	11.8
Width of nasal swellings		6.2	5.7	6	6.2	6.9	6.1	6.5	6
Mandible, length		15.8	14.6	15.2	14.8	16	15.7	17.6	16
Upper teeth		8.8	8.1	8.6	8.4	8.9	8.7	9.7	8.8
Lower teeth		9.5	8.8	9.2	9	9.8	9.2	10.3	9.3